UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,676	01/30/2001	William J. Ebel SR.	TI-30224	8020

7590 03/22/2004		
RONALD O. NEERINGS	**EXAMINER**	
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P.O. Box 655474	ART UNIT	PAPER NUMBER
Dallas, TX 75265	2634	

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _30 January 2001_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-10_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-10_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _30 January 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Claim Objections

1.   Claim 3, 5, 7, and 9 are objected to because of the following informalities: The

recites the limitation "the comparison result".   There is insufficient antecedent basis for this

limitation in the claim.   Appropriate correction is required.   A recommended correction is

"...a comparison result"

Claim Rejections - 35 USC § 102

> (a) the invention was known or used by others in this country, or patented or described in a
> printed publication in this or a foreign country, before the invention thereof by the applicant
> for a patent.

2.   Claims 1-10 are rejected under 35 U.S.C. 102(a) as being anticipated by Shao(Se

PTO-892).   Regarding Claim 1, Shoa meets the following limitations:

> A turbo decoding system**(introduction),** comprising:
>
> a decoder module, using an adaptive abort criterion; **(introduction)**
>
> wherein the adaptive abort criterion is based on the mean and the variance of partially decoded extrinsics.
> **[(See Equations 1 and 2, (Column 2, Lines 1-6) regarding the use of mean and variance; See
> (Column 2, Lines 33-36) for disclosing the use of Extrinsics]**

Regarding Claim 2, Shoa meets the following limitations:

> wherein the abort criterion is generated as a ratio of the mean and the variance of the extrinsics.
> **[Equations 1 and 2; (Column 2, Lines 1-6); Specifically term 2 shows that σ^2 is the variance
> and $y_{k,l}$ is a function of the noise which has a mean and variance, therefor it is a ratio]**

Regarding Claim 3, Shoa meets the following limitations:

> An iterative decoder system**(introduction)**
>
> a decoder module, wherein estimates of data symbols are generated through an
> iterative decoding process; **(introduction)**
>
> a comparison algorithm for comparing a derived quality attribute of the generated data symbol estimates
> to a predetermined threshold; **[Eq 6; (Column 3, Lines 8-13)]**
>
> wherein said quality attribute is based on the mean and the variance of the estimates of the data
> symbols; and **[Equations 1 and 2; (Column 2, Lines 1-6); Specifically term 2 shows that σ^2 is
> the variance and $y_{k,l}$ is a function of the noise which has a mean and variance, therefor it is a
> ratio]**
>
> wherein decoding is aborted based on the comparison result. **[Eq 6, (Column 3, Lines 8-13)]**

Regarding Claim 4, Shoa meets the following limitations:

> the quality attribute is generated as a ratio of the mean and the variance of the estimates. **[Equations 1 and 2; (Column 2, Lines 1-6); Specifically term 2 shows that $\sigma^\wedge 2$ is the variance and $y_{k,l}$ is a function of the noise which has a mean and variance, therefor it is a ratio]**

Regarding Claim 5, Shoa meets the following limitations:

> A method for determining an abort criterion in turbo decoding, **(introduction)**

> generating extrinsic values; **(Section 2)**

> for each extrinsic value, generating a signal-to-noise ratio; **[Equations 1 and 2]**

> comparing the generated signal-to-noise ratio to a threshold signal-to-noise ratio; **(Equation 4)**

> aborting based on the comparison result; **(Section III)**

> wherein said signal-to-noise ratio is computed from the mean and the variance of the extrinsics. **[Equations 1 and 2]**

Regarding Claim 6, Shoa meets the following limitations:

> wherein the signal-to-noise ratio is computed by dividing the mean of the extrinsic values by the variance of the extrinsic values. **[Equations 1 and 2; (Column 2, Lines 1-6); Specifically term 2 shows that $\sigma^\wedge 2$ is the variance and $y_{k,l}$ is a function of the noise which has a mean and variance, therefor it is a ratio]**

Regarding Claim 7, Shoa meets the following limitations:

> A method for determining an abort criterion in iterative decoding, **(introduction)**

> generating estimates of data symbols; **(Section 2)**

> generating a quality attribute based on the mean and variance of the estimates; **[Equations 1 and 2; (Column 2, Lines 1-6); Specifically term 2 shows that $\sigma^\wedge 2$ is the variance and $y_{k,l}$ is a function of the noise which has a mean and variance, therefor it is a ratio]**

> comparing the quality attribute to a predetermined threshold; **(Section III)**

> aborting the turbo decoding based on the comparison result. **(Section III)**

Regarding Claim 8, Shoa meets the following limitations:

> wherein the quality attribute is generated as a ratio of the mean and the variance of the estimates. **[Equations 1 and 2; (Column 2, Lines 1-6); Specifically term 2 shows that $\sigma^\wedge 2$ is the variance and $y_{k,l}$ is a function of the noise which has a mean and variance, therefor it is a ratio]**

Regarding Claim 9, Shoa meets the following limitations:

> A method for determining an abort criterion in iterative decoding, **(introduction)**

> generating estimates of data symbols after an iteration substep; **(Section 2)**

> measuring the mean of the estimates; **(Equations 1 and 2)**

> measuring the variance of the estimates; **(Equations 1 and 2)**

generating a quality attribute based on the mean and the variance; **(Equation 4)**

comparing the quality attribute to a predetermined threshold; **(Section III)**

and aborting the turbo decoding based on the comparison result. **(Section III)**

Regarding Claim 10, Shoa meets the following limitations:

wherein the quality attribute is generated as a ratio of the mean and the variance of the estimates. **[Equations 1 and 2; (Column 2, Lines 1-6); Specifically term 2 shows that σ^2 is the variance and $y_{k,i}$ is a function of the noise which has a mean and variance, therefor it is a ratio]**

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please look at PTO-892 for references other than Shoa.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Vartanian whose telephone number is 703.305.8698. The examiner can normally be reached on 9-5:30 Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703.305.4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.   Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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